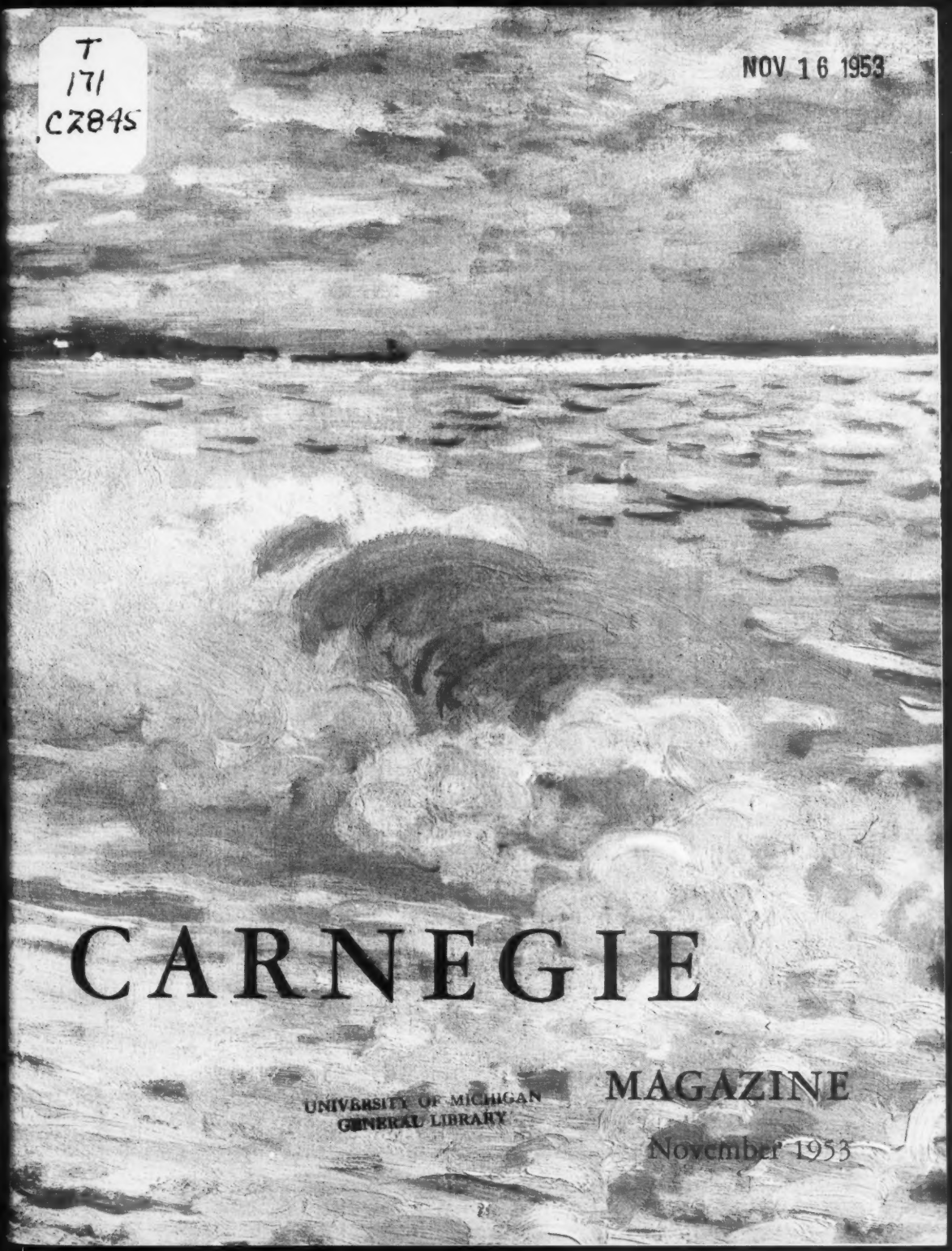

CARNEGIE

MAGAZINE

November 1953

Primitive tools used by Eskimos

A snow pick and a hide flesher. From the collection of the Carnegie Museum.

THE ECONOMY OF THE ESKIMO

Generally, the Eskimo civilization has remained a communal system of living except for the areas of Alaska and Greenland where some Eskimos have assumed the white man's mode of living.

Under this centuries-old system, raw materials are communal property, while home-made articles are private property. The work load is divided so that the men take care of hunting and fishing while the women prepare skins, render fats and oils, make clothing and tents. The Eskimos have no government or police, as our society knows these institutions.

Eskimos make all the items necessary to their existence. Within their communal living system, a basic currency system is unnecessary. However, in dealing with traders, Eskimos barter furs and skins for metal weapons and utensils.

Without extensive trade or industry . . . living in self-sufficient surroundings . . . the Eskimos have found no need to coin money or develop banking practices.

And so it is always with simple economies. Only as an economy becomes more intricate and developed, do banking and monetary practices appear that facilitate the commercial advancement of a country.

CARNEGIE INSTITUTE 4400 Forbes Street, Pittsburgh 13, Pennsylvania

Weekdays 10:00 A.M. to 5:00 P.M., closed Thanksgiving Day
Tuesdays 10:00 A.M. to 10:00 P.M.
Sundays 2:00 to 5:00 P.M.
ARMS AND ARMOR AND DEADLINE FOR WILDLIFE open to 10:00 P.M., weekdays through December 12

CAFETERIA OPEN FOR VISITORS TO THE BUILDING

Luncheon 11:00 A.M. to 2:00 P.M., weekdays
Dinner 4:45 to 7:30 P.M., Tuesdays and Thursdays omitting Thanksgiving Day
Snack Bar 2:00 to 5:00 P.M., daily

CARNEGIE LIBRARY OF PITTSBURGH 4400 Forbes Street, Pittsburgh

Weekdays 9:00 A.M. to 9:00 P.M., reference services to 10:00 P.M.
Sundays 2:00 to 5:00 P.M., reference services only
Library closed Thanksgiving Day

COVER

Our cover this month reveals a detail from a new painting in the permanent collection: Claude Monet's *The Sea at Le Havre*, currently shown in the Experimental Gallery that has been set up in the Hall of Architecture. This picture was painted near Monet's native town of Le Havre in Normandy. There he had already come in contact with the painters Boudin and Jongkind who were painting in *plein air*, and with Gustave Courbet, whose strong influence is apparent in this work. Painted in 1868, the picture antedates the first Impressionist exhibition by six years, and is pre-impressionist in style as well as time.

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NOVEMBER CALENDAR

DEADLINE FOR WILDLIFE

The Museum, with financial assistance from the Pennsylvania Game Commission, presents the story of wildlife conservation. Featured exhibits include cartoons, mural paintings, mounted specimens of native wild creatures, and a giant waterfall that makes nature come to life inside the Museum galleries.

ARMS AND ARMOR

MEDIAEVAL AND RENAISSANCE ARMS AND ARMOR are exhibited by the Department of Fine Arts in a richly colored battle tent. The armor is lent by the Metropolitan Museum of Art with several pieces from the William Randolph Hearst collection, and the display is underwritten by local steel firms. Tapestries and protective equipment for modern warfare, industry, and sports, and models of steel-mill operations supplement the exhibit.

Through the courtesy of the Metropolitan Museum of Art, moving pictures showing the making and use of arms and armor are being shown in Lecture Hall each Sunday at 2:15 and 3:15 P.M., through December 6.

CONTEMPORARY ART GALLERY

The redecorated Gallery of Contemporary Art currently presents another large group of paintings from the collection of G. David Thompson as well as from other lenders. Among them are a number of Miros, a Pollock, a Gatch, a de Kooning, several Arps, and a group of paintings acquired by the Institute from the 1952 PITTSBURGH INTERNATIONAL.

JUNIOR NATURE STUDY

Boys and girls from six to sixteen years old, who are interested in nature study, are invited to the Junior Naturalists Club every Saturday beginning November 7, from 10:00 to 11:30 A.M., in the Student Museum.

Carnegie Nature Club, also opening November 7 for regular Saturday meetings from 10:00 to 11:30 A.M., is for seventh-grade children selected by their school teachers for special interest in the subject.

SATURDAY AFTERNOON MOVIES

Selected moving pictures on nature, travel, health, with cartoons, resume this month each Saturday at 2:50 P.M., in Lecture Hall.

SUNDAY ORGAN RECITALS

Marshall Bidwell presents an hour of music, classical and contemporary, on the great organ of Music Hall each Sunday afternoon at four o'clock, under sponsorship of the Arbuckle-Jamison Foundation.

SOCIETY ILLUSTRATED LECTURE SERIES

Music Hall, 6:30 and 8:30 P.M.
Admission only by membership card

November 3—HAWAII

Nicol Smith's colored films range from thriving Honolulu to mysterious Molokai; from Kauai, the garden island, to the vast crater of Haleakala on Maui.

November 10—WARFARE AND CHIVALRY IN OLD EUROPE
(*One lecture only at 8:30 P.M., in Music Hall, to which the public is invited.*)

Theodore Low, an authority on armor and knighthood, and education director at the Walters Art Gallery in Baltimore, will interpret the ARMS AND ARMOR exhibit.

November 17—CAMERA TRAILS ALONG NATURE TRAILS
(Harmony Dairy Company, sponsor)

Dick Bird, photographer and naturalist, shows colored movies of the varied wildlife of Canada's woods and waters that are the most intimate ever filmed.

November 22—THE PROTECTIVE VALUE OF ARMOR—ANCIENT AND MODERN
(*One lecture only, at 2:30 P.M., Sunday, November* 22, *in Lecture Hall, to which the public is invited.*)

Stephen Grancsay, curator of arms and armor at the Metropolitan Museum of Art in New York City, is this country's foremost authority on armor, and serves as consultant to the chief of ordnance, U. S. Army, on protective armor in modern warfare.

November 24—TRAVEL TRAILS OF THE ANDES

Herbert Knapp's colored pictures show South America's most picturesque Indians and their top-of-the-world existence, as well as ruins of the fabulous Incas.

December 1—BURMA—LAND OF THE PAGODAS

W. K. Norton served in World War II in Burma, then spent most of last year taking these colored films of its rituals, pagodas, markets, and jungle.

FALL FESTIVAL OF CHILDREN'S BOOKS

Louise Seaman Bechtel, children's book editor for the *New York Herald-Tribune*, and Elizabeth Nesbitt, associate dean of Carnegie Library School, will speak on "A Rightful Heritage" at 8:00 P.M., Tuesday, November 17, in Boys and Girls Department of the Library, to open the annual fall festival of children's books. An exhibit, LANDMARKS IN CHILDREN'S LITERATURE, will be shown.

STORY HOUR AT THE LIBRARY

Oral narrations of sagas based on the ancient Icelandic *Volsunga Saga* continue at 10:30 A.M., Saturdays, through November 21, for young people from eleven years up.

Regular story hour for six- to sixteen-year-olds comes each Saturday at 2:15 P.M.

Pre-school story hour comes alternate Tuesdays, November 10 and 24, at 10:30 A.M., with talks for mothers at the same time by Library staff members.

RURAL MURAL GIVING THE PENNSYLVANIA VERSION OF "THE HAPPY FARMER"

EVERYBODY GETS INTO THE ACT

It began as an inside job for Carnegie Museum, with our cosponsor, the Pennsylvania Game Commission, figuring prominently in the budget but not at the conference table. The first draft of the exhibition now called DEADLINE FOR WILDLIFE was roughed out by the Acting Director and half a dozen of his own staff. Flanking him as fellow scientists schooled in conservation were Caroline Heppenstall, Kenneth Parkes, and Neil Richmond, of the sections of mammals, birds, and herpetology respectively. For design, color, and lighting effects the committee looked to head designer James Lindsay, who could probably dramatize a laundry list in three or maybe four dimensions should the need arise. Layout and cartoon ideas were the province of artist Clifford Morrow, leading contender for this year's versatility title, while the staff scribe represented that portion of the public whose impatience with technicalities demands that specialists' jargon be cut to fit an everyday vocabulary.

Seven people and two organizations to start with. Before the snowballing was over, the full roster of contributors to this exhibition included seventeen of the Museum staff, sixteen from the Buildings department, one from the Division of Education, thirteen volunteer preparators, a dozen government agencies in Pittsburgh, Harrisburg, Albany, and Washington, half a dozen local manufacturers, four newspapers, three other museums, and more individual consultants or suppliers of exhibit material than could be listed in twice this space.

The planning committee's first task was to agree on a so-called story line. This is some-

times known as deciding what to leave out, for selection is half the battle when you are dealing with a broad and branching subject like conservation. Committee members then scattered to the four winds in search of specimens and other display material needed to tell the story graphically but not available in Museum collections and workshops. Although exhibits in the round are the main features of this show, photographs have been used throughout to reinforce a point made in a cartoon or diorama; and, as every picture editor knows, finding the one shot that best suits a particular purpose often means examining and considering fifty or a hundred others. Some of this was done by mail and some by ferreting through the office files of our long-suffering collaborators. A dozen sources, public and private, furnished black-and-whites for enlargement. Color pictures of Pennsylvanians at play, shown in the slide projector to the left of the waterfall, are by nature photographer Hal H. Harrison.

When it came to three-dimensional material, the historical parts of the exhibition were the ones that required the most legwork. For the wildlife obituary an Eskimo curlew was borrowed from Cornell University, while Penn State's offer to lend the only known mounted specimen of a Pennsylvania panther was gratefully accepted, despite the unusual stipulation that this victim of outdated taxidermy and senile decrepitude be returned in better shape than when we got it. The ten-foot punt gun came from the Smithsonian Institution, Washington, D. C., other guns and powder horns from the Western Pennsylvania Historical Society. Axes were borrowed locally, one from Bernard Braverman and one from Grant McCurdy, who also lent the circular saw. Logging tools were lent by the Warren Axe and Tool Company. The farm fence that brings out the yokel in every visitor was donated by the Bindley Fence and Equipment Company. To get the old plow, Richmond made an expedition to the Westmoreland-Fayette Historical Society museum at Scottdale, where he incidentally captured a specimen of surviving wildlife in the form of a live attic-dwelling bat for our mammal collection.

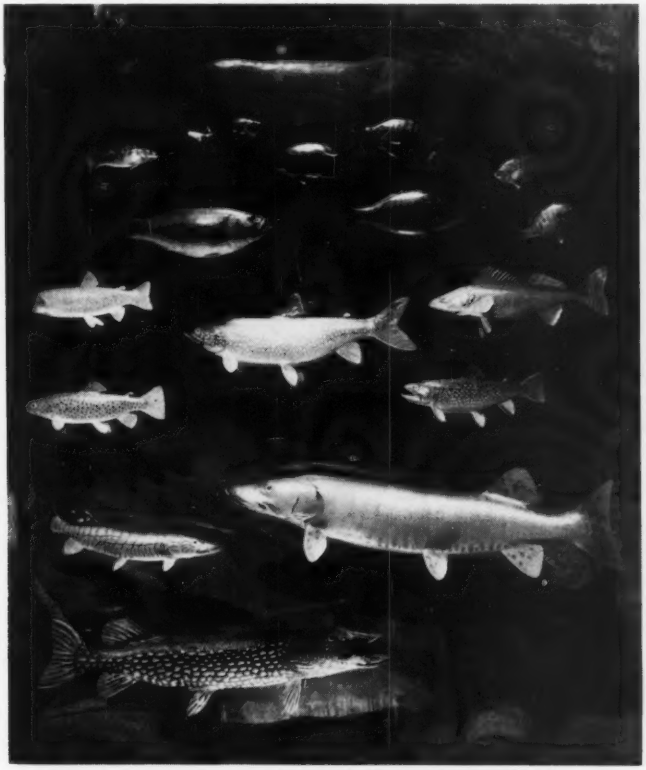
Mural honors in these historical displays were shared by two artists, Cliff Morrow and Jay Matternes. The cartoons of the power shovel, market hunter, lumberjack, rabbit, and octopus are Morrow's, as well as the sparsely-populated map of pre-Columbian Pennsylvania on which actual Indian pictographs are used as symbols. Morrow reappears at the far end of the gallery on the panel devoted to outdoor recreation, where his drawings of people at work contrast with the colored slides of places to play in Pennsylvania. Matternes designed and executed the ingenious cut-out of pioneers living off the fat of the land, in the shadowbox introducing the white man. Around the corner in the demonstration of present-day farming practices you find the same artist working on a different scale with a different technique to produce the huge and detailed semicircular panorama of rural Pennsylvania.

It will surprise no one to learn that the largest constellation of skills went into the making of the giant waterfall, which evolved from a paper plan once known to skepticism as "Lindsay's Folly." Let's draw a veil of anonymity over the doubting Thomases and pay brief tribute to the twenty-four hard-worked illusionists who made them eat their words.

Jim Lindsay not only conceived the idea but followed through in enough detail to make certain it was practicable before it left the drafting table. G. A. Link next made a scale model resembling the finished display in everything but size and action. Then our carpenters built a framework 35 feet wide, 38

feet deep, and 14 feet high, containing five thousand board-feet of salvaged lumber and resembling the underpinnings of a roller coaster. On this foundation Gus Link constructed a waterfall, stream, and pool so like nature's own that not even a fish can tell which of the stones are real and which the product of artful sculpture, texturing, and painting on cement or papier-mache. As a fabricator of stonework Link has long been without a peer, but this time he has outdone even his own previous tours de force. Actually, the only real stones are the small ones in the stream bed, amounting to three tons all told. Five tons of sand, thirty bags of cement, a ton and a half of plaster, and a ton and a half of gravel were used to make the artificial stone. Standard Dry Wall Products, Inc., furnished waterproofing material, and the self-contained plumbing system that circulates two hundred gallons of running water a minute was installed by a crew of engineers from the Buildings department, with L. M. Susany in charge.

A waterfall wouldn't be complete without trees and bushes along the banks, and it takes a lot of waxwork leaves to create a realistic but durable growth of vegetation in an area that size. Hanne von Fuehrer, the Museum's star conjurer in this difficult medium, began



ANGLER'S DREAM: SIXTEEN BEAUTIES, ALL PENNSYLVANIANS

WOODLAND WATERFALL IN THE NEW MUSEUM EXHIBIT AND CONSTRUCTION THEREOF

early in the summer collecting live botanical specimens to use as models. Her next problem was to find assistants who could turn out handmade replicas with assembly-line efficiency. Thanks in part to a "help wanted" feature story by James W. Ross in the *Post-Gazette*, eight women and five teen-age girls, all working without pay, were enlisted to man a high-powered leaf factory that continued in production at top speed throughout the summer. The five who had to redirect their attention to the leaves of textbooks after Labor Day were Janet Brady, Jill Cogan, Joan Nicholas, Marjorie Ulrich, and Barbara Walton. Others on the volunteer crew were Margaret Allen, Anne Slater, and Mesdames Herbert W. Browne, Herbert L. Coe, Fred Hunt, Albert Lang, Charles E. Petot, and Wayne Poff.

Not only the waterfall but the three-dimensional foreground of the farm diorama was clad in artificial foliage made by Mrs. von Fuehrer and her neophyte preparators. Their total product comprised twenty thousand individual leaves, each reproduced separately, representing nineteen different kinds of trees, shrubs, and plants, ranging from rock fern to oak. Every leaf, flower, and berry then had to be wired to the appropriate twig or stem of a real plant specimen supplied by Francis Bowne of the Soil Conservation Service or by the state foresters at Ligonier.

In the meantime other exhibit material was being assembled from all over the Museum. Of special interest are the mounted groups of bobcats, red foxes, and other Pennsylvania animals, originally prepared by the late Reinhold Fricke and moved from the student-museum area for inclusion in DEADLINE FOR WILDLIFE. James Kosinski of the Division of Education supplied and prepared for exhibition the woodpeckers in the den tree.

As the displays were being assembled a few specimens of wildlife on the hoof were discovered taking part in the preparations. One den tree yielded a startled but athletic field

mouse, another a colony of big black ants. These unpremeditated touches of realism were promptly edited out of the show. The only remaining inhabitants still alive and kicking as this issue goes to press are the bluegills and catfish in the pool, donated by the Pennsylvania Fish Commission and the City of Pittsburgh Department of Parks and Recreation. No less real-looking and possibly even more beautiful in color and shading are the sixteen life-size replicas of Pennsylvania game fish in the panel to the right of the waterfall. These are casts of real fish, modeled in plastic by expert preparator Harold Clement. With this material, which is translucent, paintable, and slightly flexible after casting, he has faithfully reproduced every detail of the living fish down to the final shimmering scale.

We have left to the last what really comes first in any exhibition—the groundwork on which all else depends. Time was when designing a museum exhibition meant little more than selecting new material to display in a rectangular room that never changed. Today the gallery itself is part of the design. An Athenian temple may become a mediaeval battle tent as a setting for the arts of the armorer, or a system of walls within walls may be devised to lead the visitor through a sequence such as PITTSBURGH PORTRAIT or DEADLINE FOR WILDLIFE.

To all who contributed to the exhibition, individual and public recognition is given in an illustrated booklet now on sale for twenty-four cents in the Institute's Art and Nature Shop. But even a complete list of their names does not end the roster of participants. Two weeks ago the doors opened to admit the people for whom the show was produced. Its value will depend on how completely this audience gets into the act, with understanding and imagination, during the next twelve months.

BOOKMOBILE: FIRST YEAR

WHEN Carnegie Library's Bookmobile pulled up to the curb in Beechview for its first neighborhood stop, a long line of expectant book-borrowers were awaiting it. Now, a year later and with the novelty of a library-on-wheels having passed, the line is longer and fully as eager. So it is in seven other parts of Pittsburgh—all far removed from any branch library.

Except during the summer months, the Bookmobile carries books for adults and preschool children only, since older children are served through the school libraries. During its first year, the Bookmobile lent 76,338 books, more than any branch library except East Liberty, Homewood, and Brookline.

This first year has been an experimental one to determine the necessary staff, book stocks, and length of stops. Several additional stops can now be added.

The Bookmobile may well be setting a new pattern of library service in Pittsburgh. Branch libraries are economically justified only when they are centered in thickly settled districts. Because of irregular topography, there are few such in the newer parts of the city. Housing is being developed in isolated spots where population must be limited.

It would be financially burdensome, perhaps impossible, to maintain a branch library within a convenient distance of all these districts. Some branch libraries will always be needed to provide reference and study facilities, but the Bookmobile appears to be a satisfactory way of taking lending library services to the smaller districts of the city.

The Library's heartiest thanks go to the Wherrett Memorial Fund of The Pittsburgh Foundation for providing the Bookmobile. It is serving both as an actual means of extending library service, and as an experiment that will govern future plans.

AN EXPERIMENTAL GALLERY

GORDON BAILEY WASHBURN

THANKS to a generous donation, an unusual experiment in the form of a small pavilion has been opened in the Hall of Architecture at Carnegie Institute. Designed by the Director of Fine Arts in collaboration with James W. Lindsay, chief of design, this compact gallery is built to display a masterpiece. This month *La Gorge de Varengeville* by Claude Monet, the great French Impressionist, is being shown, lent to the Institute by the Wildenstein Galleries in New York City. In October a painting of the rocks at Etretat by Monet, lent by the Metropolitan Museum of Art, was featured.

There are two parts to the gallery—a room in which the chief picture is hung, and an anteroom. In the latter, the Impressionist period (1874-86) is historically surveyed and the theory of Impressionism is elucidated through paintings, photographs, charts, and other supplementary material, including furniture and other decorative arts of the period. The entire unit is intended to test the theory that visitors can obtain greater enjoyment from concentrating on a great work of art, independently displayed in a quiet room, than from walking through long and tiring galleries hung with rows of fine pictures.

The visiting public is asked to make brief comments on this experiment, using slips provided for that purpose, throughout the three months the gallery is open.

Impressionism, as analyzed in our anteroom, is characterized as a movement led by Claude Monet and originally most closely supported by the artists Pissarro and Sisley. Known first as "Naturalists" and later as "Impressionists," they were joined by other notable painters who showed together in Paris between 1874 and 1886. Among the fifty-six exhibitors were Renoir, Cézanne, Degas, Gauguin, and Seurat. The title of a Monet in the first exhibition *Impression, Soleil Levant* (Impression, Sunrise) was seized upon by a hostile critic, Louis Leroy, as explaining the novel style of these nineteenth-century revolutionaries. The name was grudgingly accepted by the group.

Curiously enough, it was not the French but the Americans who first found this new kind of naturalism beautiful and satisfying. Thanks to the American Impressionist, Mary Cassatt, native of Allegheny, Pennsylvania, then painting in Paris, pictures were sold to the Havemeyers of New York and later to Stillmans and Whittemores. Monet's radiantly beautiful picture *Etretat* (1886) which was the center of attention in our experimental gallery last month when it opened, was once owned by Mrs. H. O. Havemeyer and bequeathed by her to its present owner, the Metropolitan Museum of Art in New York.

In 1886, the year of the last Impressionist show in Paris, the famous art dealer Durand-Ruel brought three hundred Impressionist canvases to New York for exhibition. They were not badly received, although the *Daily Tribune* mentioned that in conservative circles the Impressionists' work was regarded as merely eccentric. The *Sun* noticed "the dumpy and obnoxious creations of Renoir" and stated that Degas "draws badly." Pissarro's landscapes were "fantastic and amusing," and Seurat's *Bathers*, now in the Tate Gallery in

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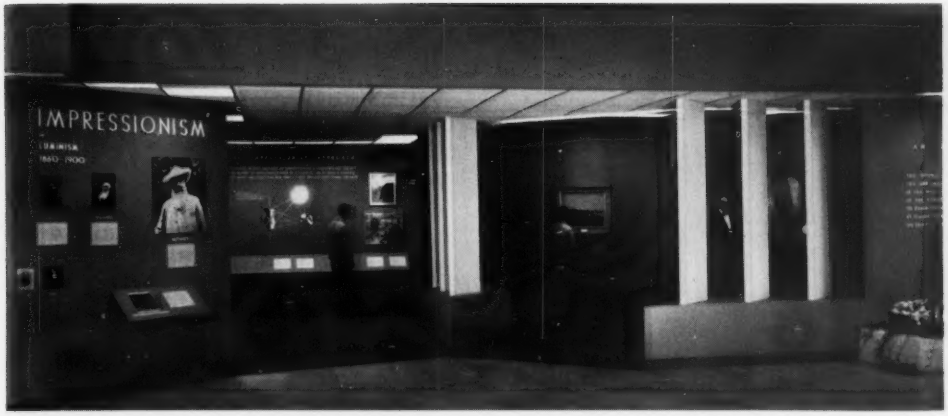
Mr. Washburn, who became director of fine arts at the Institute in October 1950, has presented FRENCH PAINTING: 1100:1900, the 1952 PITTSBURGH INTERNATIONAL, and currently ARMS AND ARMOR to the Pittsburgh public. This experimental gallery is his most recent project.



A PAINTING BY CLAUDE MONET (1840-1926) IS FEATURED IN THE FINE ARTS EXPERIMENTAL GALLERY

London, "is conceived by a coarse, vulgar, and common mind. . ." Today's violence against modernity was curiously anticipated by the critic of *Art Age* who characterized the Impressionist school as "communism incarnate, with the red flag and the Phrygian cap of lawless violence boldly displayed."

But the pictures sold, like the abstractions of our own day, and the show was even moved to the august quarters of the National Academy of Design. America had appreciated the new art of France before that country had come to realize that certain of the Impressionists were not only the newest but also among the most brilliant flowers of her civilization. Today the French Government has set aside the historic Jeu de Paume pavilion in the Tuileries Gardens at the Place de la Concorde to honor her once-despised Impressionists. But in that day the state Academy of the Beaux Arts stubbornly supported an official art, known today as "Academic," against which the Impressionists had revolted. Academic art was the profitable preoccupation of such popular painters as Meissonier, Bouguereau and Gérôme.

Impressionism, influenced by the newly introduced Japanese print and by the recently invented camera, was concerned only with what the eye sees; that is to say, not with actual objects but with the momentary light reflections that are cast back from them. The Impressionists left their studios to paint their visual reactions to light echoes from all sorts of pleasant and commonplace things in the out-of-door world around them. For subjects, instead of mythological or historical themes, they were satisfied with barnyards, river scenes, poplar trees, or even haystacks in a field. These things they reported as seen in the distance at a quick glance, as impressions, their transitory effects caught by the lens of the eye as if with a color camera.

The Department of Fine Arts of Carnegie Institute is deeply grateful not only to the generous sponsors who have made this experimental gallery possible, the Trustees of The A. W. Mellon Educational and Charitable Trust, but also to the lenders who have provided us with the necessary material. These are Mrs. J. Frederic Byers and J. Frederic Byers, Jr., of Sewickley, Pennsylvania; Sam Saltz, The Metropolitan Museum of Art, Cooper Union Museum, and Wildenstein and Company, of New York City; and the Corning Museum of Corning, New York.

FOUNDER-PATRONS DAY 1953

A RECEPTION and preview of two new exhibits at Carnegie Institute marked Founder-Patrons Day the evening of October 15, with seventeen hundred members of Carnegie Institute Society and their friends attending. MEDIAEVAL AND RENAISSANCE ARMS AND ARMOR lent by the Metropolitan Museum of Art, presented by the Department of Fine Arts under sponsorship of steel firms of this area, is coupled in a "conservation" theme with DEADLINE FOR WILDLIFE prepared by the Museum in cosponsorship with the Pennsylvania Game Commission as the two major exhibitions this autumn on the first floor of the Institute. The richly colored battle tent, setting for the Armor show, and the woodland waterfall in DEADLINE FOR WILDLIFE aroused special comment among the guests. The sponsoring steel firms include Allegheny Ludlum Steel Corporation, Jones and Laughlin Steel Corporation, National Steel Corporation, Republic Steel Corporation, and United States Steel Corporation.

Tapestries, safety equipment for modern warfare, industry, and sports, and especially models of steel-mill operations, attracted the visitors. An experimental gallery presenting several Monets and the whole subject of Impressionism drew attention in the Hall of Architecture.

Music by Victor Saudek's Little Symphony and light refreshments were enjoyed in the foyer of Music Hall, which had been decorated with flags of the United Nations. A small formal garden of chrysanthemums and English ivy had been arranged by the City Department of Parks and Recreation in the center of the foyer. Repeated showings of films from the Metropolitan Museum on the making and use of armor were held in Music Hall. Parking had been facilitated for the guests by the City Traffic Division.

Pittsburgh Sun-Telegraph

GUESTS AT THE FOUNDER-PATRONS DAY RECEPTION IN THE FOYER OF MUSIC HALL

KNIGHTS, ARMOR, AND TEEN-AGERS

FITZPATRICK

THE summer art workshop this year offered an unusual and profitable opportunity to a selected group of boys and girls, fourteen to sixteen years of age, at Carnegie Institute. The project was the designing and painting of four large murals, each measuring 12 by 14 feet, for installation as part of the colorful mediaeval warriors' tent in the Hall of Sculpture, where the Fine Arts Department currently is presenting a major exhibition of MEDIAEVAL AND RENAISSANCE ARMS AND ARMOR from the Metropolitan Museum of Art. The Department of Fine Arts and the Division of Education of the Institute jointly sponsored this children's workshop.

From the Institute's morning and afternoon Palette classes directed by Margaret M. Lee a list of thirty-five student names from public, private, and parochial schools was selected on the basis of talent, dependability, and general leadership. Gordon Bailey Washburn, director of fine arts, then sent letters to their parents explaining the undertaking and requesting prompt replies giving parents' reactions and that of their sons and daughters. Since the project would extend over a six-week period during a major part of the summer vacation, some sacrifice would be involved.

The enthusiastic and unanimous acceptances made it necessary again to limit the number to sixteen boys and girls. The group included Raymond Beavin, Jack Butler, Valerie Gordon, James Harper, Jack Martine, Mary Pendleton, Anne Price, George Roland, Michael Rozeweski, Charles Schmidt, Susan Schultz, Betsy Somerville, Lloyd Strickler, Thomas Stutt, Benjie Compton, Lorraine Wiegman, and Jacqueline Thurston.

Vacations were cancelled, summertime plans were altered for participation in this project—a most unusual one, since, to the knowledge of Institute officials, it would be the first time that such an important assignment would be given to students of this age level.

The first day the group of young artists, spic and span and in their "Sunday best" met at a large table in the center of the Hall of Sculpture. They were somewhat shy and there was a look of curiosity in their eyes. Both Mr. Washburn and James W. Lindsay, chief of design, described to them the exhibition as it would appear upon completion and explained the part they would have in the work. From a miniature scale-model the boys and girls could visualize the location of the murals.

There would be four—three dealing with mediaeval combat and one with jousting, a sport of that period in which two richly garbed knights on horseback attempted to dislodge each other for the enjoyment of the nobles.

The boys and girls realized that, while they would enjoy the experience, the project would have to be handled as a major commission such as an artist would meet in professional practice. They would work five days a week, with lunch and transportation expenses provided by the Institute.

For a group of atomic-age outer-space youths to visualize the fourteenth century

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Mr. Fitzpatrick himself is an artist, a ceramist, instructor in both adult and children's classes at the Institute, and an art supervisor for the Board of Public Education. A graduate of Edinboro State Teachers College, he took his master's degree from Teachers College of Columbia University. Pictures of the summer art workshop appeared in *Life* for September 21.

of knights, castles, and ladies fair as a real life situation required much discussion and research. The Carnegie Library, through Catherine G. Hay, head of the Art Division, facilitated this phase by providing us with many books and illustrations that were reserved for the group.

In truth it was a group of Knights of the Round Table—a table of discussion, research, and the formulation of mental pictures of the mediaeval period.

Instances of similarity and differences were compared and contrasted with our twentieth-century life. Gradually from a storybook atmosphere a reality emerged. As one of the group mentioned, "Now when I draw at home for my own enjoyment, it's always knights and castles."

Pupils were advised to begin drawing in their sketchbooks at will when they had an idea. As knowledge increased their confidence grew, and the sketches displayed an authenticity that surprised us all.

From the manuscripts and illustrations in books they observed the strange perspective, figure proportion, and stylization that added such charm to their art. These characteristics the teen-age artists incorporated in their own compositions.

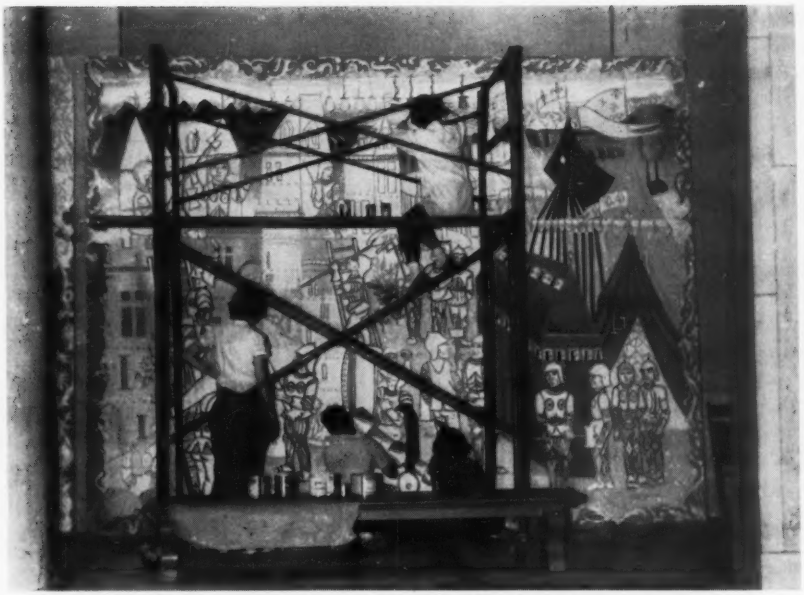
As the small drawings progressed, many questions arose concerning such matters as weapons, the brief armor of the foot soldier and the more complete armor of the knight on horseback, the weight of each, and so on.

The young artists now realized that armor was not only protective but was also a work of artistic merit, designed by the great artist-armorers of that day. The knowledge of anatomy displayed in armor design surprised them.

Gradually to increase their historical knowledge, volunteers in the group prepared

Photos by Arthur C. Twomey

JACK BUTLER, OF THE INSTITUTE'S SUMMER ART WORKSHOP, PAINTING ONE OF THE PANELS



BETSEY SOMMERVILLE, BEN COMPTON, ANNE PRICE, AND (above) VALERIE GORDON AT WORK ON ONE OF THE FOUR PANELS FOR THE ARMS AND ARMOR EXHIBIT

themes, based on research, which were given to the class at each morning's meeting. Real enjoyment and relaxation were shown by their facial expressions and voices and their obvious absorption in what they were doing.

During the first week the individual compositions in sketch form showed an understanding of the project. Variety and originality in the manipulation of the elements of castles, knights, horses, groupings of figures, and so on, were evident.

With the completion of the first sketch in line and shadow, a second, duplicate one, was made. To this color was added.

To insure a facility in making the enlargements which would follow, a scale of one-half inch to one foot was decided upon by the group. At all times during this designing process the final part these murals would play in the gallery arrangement was kept in mind.

The tempo of the group was rapid, and a pace resulted which permitted no one to lag.

Upon completion, these small sketches were arranged about the gallery. Mr. Washburn and Mr. Fitzpatrick then selected four for enlargement, the selection based on the general excellence of the composition.

Although the selection was limited to four of the sixteen compositions, none was to be used in its entirety. While a certain young artist may have designed or drawn figures unusually well, another and still another drew armor or castles with greater understanding. It so evolved that all contributed in the plan and development of all the murals.

While these boys and girls had attended the Saturday Palette classes at the Institute and had fine instruction in art, the ability to work together as a group on a single project necessitated adjustments and manipulations —a give and take so necessary in group work.

Now that all preliminary planning was

completed, the large muslin panels were shifted into proper lighting; the gear so necessary for large work, such as scaffolding and ladders, placed in readiness. It was evident too that by this time the clothing worn by the boys and girls had changed from "Sunday best" to "jeans" and scuffed shoes.

Faced with the unfamiliar task the group became less confident—the job at hand a demanding one. It became a real adventure but one to pursue cautiously. Individuals were puzzled as to what their part would be in this new phase of the work. As a group they selected a smaller group to start the charcoal plan, enlarged to scale from the small selected sketches. Gradually more and more members saw sections to which they could add their skill. The following days evidenced an interchange of young artists, passing from one mural to the other, adding to or correcting the work.

Each morning the teen-age group continued to meet at the Round Table to evaluate what had been done and to plan future procedures.

Skill in making enlargements increased with experience, and by now the entire group became absorbed in various phases of the murals. When a major problem arose the entire group would assemble and discuss methods for its solution. This in every sense was a group project.

Time passed quickly, for with each day's result the interest of the boys and girls increased. This happily continued through the six-week period. The enriching of the panels by vivid color and metallic gold was a source of encouragement that led to increased creative expression.

The physical as well as the mental demands often tired the group, but fortunately there were many intervals for relaxation. Hot days made ice-cream parties a welcome break. Lunch hour in the Institute's cafeteria and the kindness of Mrs. Margaret Hope supplied a purely social time. A boy in the group brought his record collection, and so music helped them to relax while working—easing occasional tenseness. Birthday parties and art shows of their own work brought from home added to the group enjoyment of this undertaking. However, it was always back to the project at hand, and with this in mind the murals continued to improve and to progress.

When the armor collection reached Carnegie Institute from the Metropolitan, Henry —better known as Jack—Nash, of the Fine Arts Department, held a private prevue for the group. He explained fine craftsmanship of the many weapons, the equestrian and man-worn armor. They now realized how these many segments of jointed metal permitted freedom of movement when used in combat.

A short motion picture showing men wearing armor, on foot and on horseback and in battle, convinced these teen-agers that this long-time past had its skilled inventors and artist-craftsmen. A member of the group was overheard saying that the summer's activity at the Institute was both a course in history and art.

With days so full of activity, interest, and enjoyment, the six weeks passed too quickly for all the boys and girls. The use of the many Museum and Library resources, and the completed murals added up to a more than satisfactory experience.

The last afternoon these teen-agers were together was spent viewing the many colored slides and photographs that Arthur C. Twomey, director of the Division of Education, had made of the many phases of the project. It reviewed for them, step-by-step, their method of painting a mural.

Proof of their attitude toward the undertaking was the parting remark: "Will you please put my name on the list for next summer's art workshop?"

R FOR DOLDRUMS

ROBERT D. COWEN

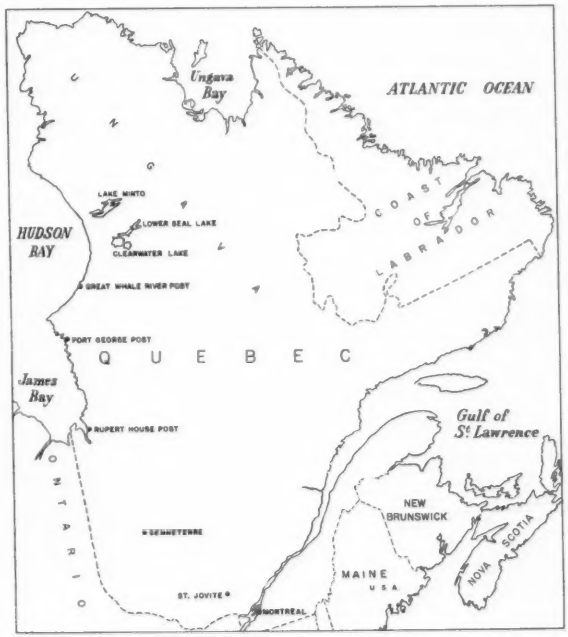
Vision and imagination are required to create a business or to succeed in a profession. When a man approaches his recreation, he often suppresses the same qualities that brought him fortune in his chosen field. Is it any wonder that he returns from a vacation feeling annoyed and frustrated? The chances are that he has gone with friends from home, traveled in areas as well known as the streets of his own city, and played golf on courses varying but little from those of his home club.

For the intelligent man who finds himself bored by the conventional approach to a holiday, I have a remedy. Try exploring, and when you make up your party, put together as diverse a group as possible, making sure that one or two are experts on what you hope to find. Our expedition to the Sub-Arctic during the summer just passed illustrates most clearly a pattern which provided us all with enough experience and new knowledge to last a lifetime.

Closer than Florida by air but in the opposite direction lies Ungava, a vast area of Labrador and Quebec. Even the latest maps contain immense sections marked "Unknown," which cannot but offer a challenge to the man who feels his present horizon too confining. One of the most promising of these blank spots is the region surrounding Clearwater Lake, a large body of water in the central part of the interior.

Until our trip, not more than a dozen white men had ventured into this land larger than the state of Texas. Three of these are scientists still living and on the staff of Carnegie Museum in Pittsburgh, W. E. Clyde Todd, Arthur C. Twomey, and J. Kenneth Doutt. It may be news to Pittsburghers, but in museum circles the name "Carnegie" is almost an international synonym for knowledge of Arctic birds and mammals.

Through the co-operation of James F. Hillman, a trustee of Carnegie Institute, a meeting was arranged by M. Graham Netting, acting director of the Museum, between our group and this Arctic team in Pittsburgh. We succeeded in demonstrating our ability to penetrate the area and our serious interest in



learning more about the mammals, the elusive landlocked seal in particular. We were most fortunate to have Dr. Doutt, curator of mammals at the Museum and veteran explorer of the North Country, join our party.

Geologically, almost nothing is known about this section of Ungava. Arrangements were made with Frobisher, Ltd., one of Canada's great mining companies, to have their top field man, James Harquail, accompany us, teaching us to become amateur prospectors and helping us record and evaluate our findings. These two experts were to be the means whereby the five business and professional men in the original group organized an expedition with a purpose other than a hunt for trophy heads and record fish.

Space does not permit recounting our preparations for the trip. They were time-consuming and thorough, almost as instructive as the expedition itself. There were books to read, meetings to attend, letters to write, and men to interview.

The months sped by until finally, on July 19, the advance party was ready at St. Jovite, Quebec, to fly north. We were using a Norseman and a Super Cub, both on floats and flown by expert bush pilots. The Norseman was the larger plane and carried most of the initial load. The Cub is a two-place ship and was to prove extremely useful later on when it was necessary to land and take off from lakes the size of the Carnegie Tech campus.

St. Jovite is about seventy air miles from Montreal, and our destination lay one thousand miles due north of that point. Gasoline had been shipped ahead by boat and stored in drums in caches along the route. There were four stops in all—Senneterre, Fort George, Rupert House, and Great Whale, all but the first along the coast of Hudson Bay.

One of our many projects was a movie record of our expedition, and many scenes were shot at these Hudson Bay posts along the way. We were fortunate in being on the spot when the Eskimos and Indians voted for the first time, and we have perhaps the only footage taken of that history-making occasion.

Great Whale is half way up the east coast of Hudson Bay. As we neared the post, the contrasting white of polar ice made the water even bluer. This same float ice which had worked south on the west side and was now heading north on the polar currents later provided us with a polar bear and its cub, valuable additions to the Museum's collection.

One hundred and forty miles northwest and inland from Great Whale we sighted Clearwater Lake, one of Ungava's largest. From the air it looks like a gigantic dumbbell and it is actually two fairly round lakes with a channel connecting them. We pitched our tents on the shore of the narrows, which

Photos by Robert D. Cowen

THE TWO PLANES AT THE CAMP ON CLEARWATER LAKE

AL WOOD, GEORGE CARPENTER, J. KENNETH DOUTT NEAR THE EXPEDITION'S CAMP SITE IN UNGAVA

afforded protection for our planes.

In a few days, the PBY dropped down out of the overcast with the first of four loads of supplies, boats, gasoline, and personnel. We had five weeks ahead before the equinoctial storms of September would make loitering foolhardy. It was decided to establish an outpost or "fly camp" on nearby Lower Salt Lake to locate Dr. Doutt in the center of the most promising territory for the landlocked seal.

Ray Lawson, A. T. Wood, John V. Rawson, his son Skip, and two native guides were flown north to the Lake Minto area with three canoes and supplies for six weeks. They were the first white men to cover much of the route by canoe, and the story would make another article in itself. They brought back some new data on the geology of the area, corrected existing maps, and had some terrific fishing for trout and Arctic char.

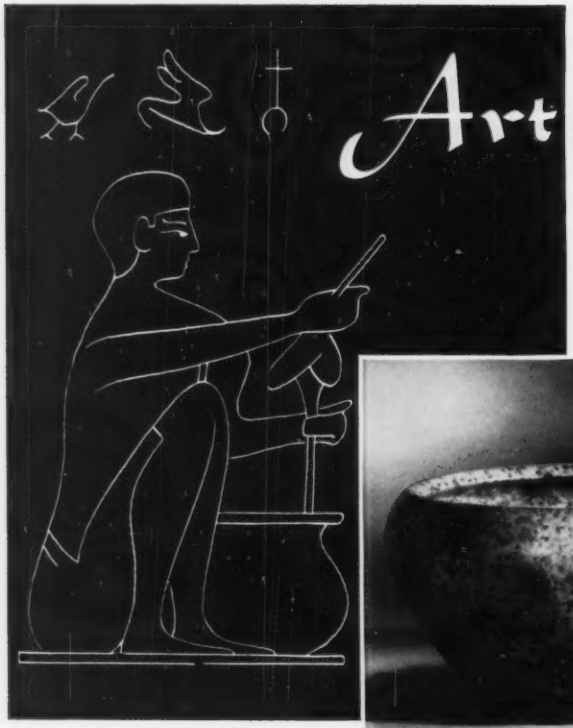
Those of us who remained at the base camp explored the surrounding area on the ground and in the air for evidence of minerals. The country could hardly be termed barren. Spruce and tamarack up to forty feet high furnished enough wood in small stands to keep the fire going. Deep moss on the rocks made all walking slippery and mushy. It also proved a haven for mosquitoes and black flies, and on warm days each step would arouse new swarms to join the cloud that bedeviled our progress. On cold days, however, they let us alone, and we had more than enough of that kind of weather. Travel inland in the summer would be almost a physical impossibility except by plane or boat, for rivers and lakes bar the way in every direction.

When we had the time, we found the fishing unbelievably good. Wherever there were rapids, speckled and lake trout were plentiful, both varieties hitting on the surface and offering tremendous fight. We all used light spinning or fly tackle, and when a two-foot trout hits a lure on a five-ounce rod, you are very sure to be busy for the next ten or fifteen minutes. George Carpenter, one of Canada's foremost writers on these matters, likened their action to the battle a salmon puts up, the highest accolade in his vocabulary. Fishing in the interior of Ungava can become almost unbearably dull in a few hours. It seems that each cast produces a hit even on bass lures in the hands of a novice. Where then is the sport, unless the fishing is an adjunct to the pursuit of knowledge?

Perhaps more than one reader smiled to

[*Turn to page 336*]

Robert D. Cowen, of Cleveland, is a spare-time explorer whose working time is spent with the Monongahela & Ohio Coal Company, of which he is president. His first Ungava expedition was in the summer of 1952, when he and several companions flew around the Labrador Peninsula.



Art for the table

Original in Carnegie Museum

Thirty-six hundred years old! Yet this Egyptian feldspar bowl would fit into any modern table setting; its beauty of form is so timeless. Archeologists discovered it in the tomb of Khasekemui of the II Dynasty, where, filled with fruit or grain, it had been placed to provide sustenance for the dead nobleman in the "life hereafter."

How did the Egyptian so long ago fashion vessels of such astonishingly fine quality? First he chiseled his bowl from a rough stone block; then he hollowed and polished it with a drill. For man had invented a stone-pointed drill complete with shaft, fly-wheel and crank as far back as 3000 B. C.! And several centuries later—perhaps in time to finish this very bowl, he perfected a tubular drill of metal.

It was man's mechanical genius that allowed him to produce bowls in quantity; but it was his sensitivity to shape and proportion and his appreciation of the intrinsic weight, color and texture of the stone that made these bowls ageless things of beauty.

ANDREAS VESALIUS OF BRUSSELS

WILLIAM L. BLOCKSTEIN

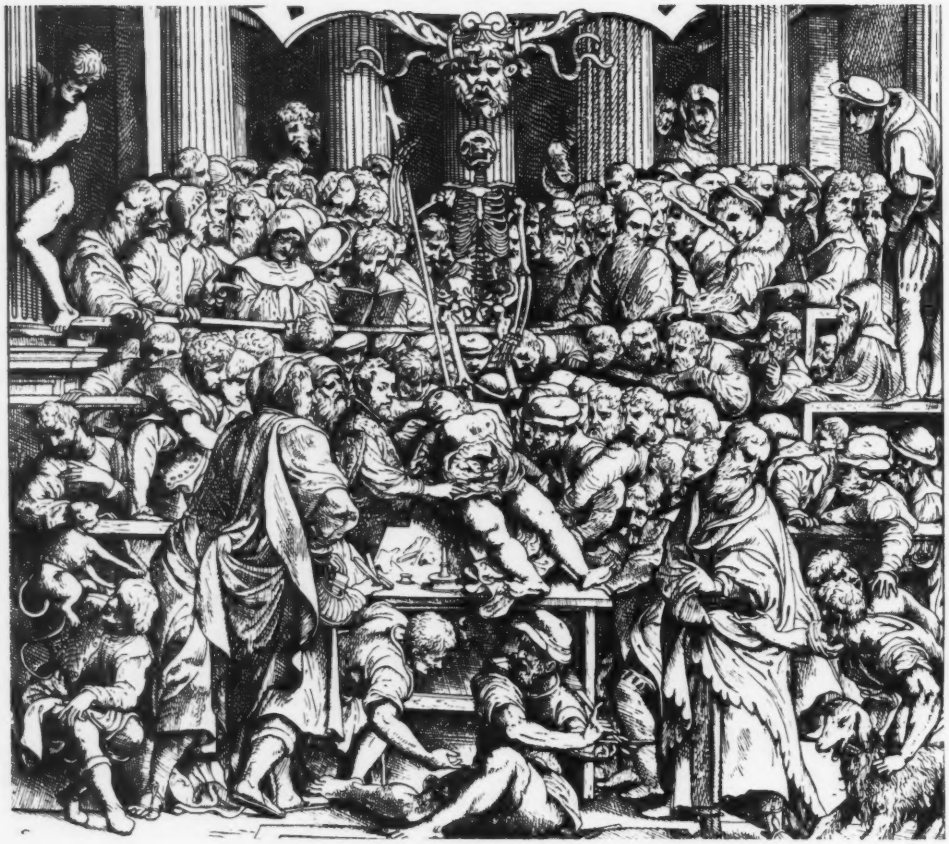
The early part of the sixteenth century saw Raphael, Michelangelo, Titian, Holbein, and Correggio, the artists; Luther, Melanchthon, Erasmus, Xavier, Loyola, Calvin, and Knox, the ecclesiastics; Thomas More, Hans Sachs, Ariosto, Rabelais, Montaigne, Tasso, and Spenser, the authors and poets; Palestrina, the musician; and Vesalius, the anatomist.

The work of Andreas Vesalius of Brussels constitutes one of the greatest treasures of Western civilization and culture. His masterpiece, the *De Humani Corporis Fabrica*, and its companion volume, the *Epitome*, issued at Basel in 1543, established with startling suddenness the beginning of modern observational science and research. Their author has come to be ranked with Hippocrates, Galen, Harvey, and Lister among the greatest physicians and discoverers in the history of medicine. However, his book is not only one of the most noble and magnificent volumes in the history of medicine, but also in the history of printing. In it illustrations, text, and typography blend to achieve an unsurpassed work of creative art; the embodiment of the spirit of the Renaissance directed toward the future with new meaning.

Andreas Vesalius (December 31, 1514—October 2, 1564) a Fleming of German origin from Wesel on the Rhine, occupies one of the foremost places in the history of medicine, not only as the inaugurator of a real science of anatomy, but also, with Harvey, of modern science based on fact rather than tradition. He had a far from tranquil life. Descendant of a family of physicians, son of a pharmacist who seems to have had some connection with the court of Charles V, he was born at Brussels and studied first at Louvain, Montpellier, and Paris, under Guido Guidi (Vidius) and Jacques Dubois (Sylvius), an able anatomist but intense Galenist. From Paris the young Vesalius returned to Louvain and then proceeded to Padua, where, the day after receiving his doctorate, he was elevated to the chair of Anatomy. It was during this teaching period (1537-46) that he most completely demonstrated his magnificent gifts of observation and description.

At the University of Padua, which was then at the height of its splendor, with students from all parts of Europe in attendance, Vesalius found an opportunity for free research and a sympathy for the new thought which made possible the completion of work so audacious that even he, faithful Galenist in principle, did not clearly realize its significance. He undermined the foundations of Galen's anatomical pronouncements, which the entire world regarded as an indisputable canon, and on which the Church itself had conferred the aureole of true dogma. He showed that Galen's statements applied to animals alone, and that much that concerned the human body was scantily or incorrectly set down. Though teaching from the very chair in which for three centuries the masters had bowed to the authority of the great Pergamene, he found it necessary to start the study of anatomy from its very beginning. It seems the height of audacity for a youth of scarcely twenty-nine to undertake this task; the struggle was hard, but, sure of the validity of his ideas and driven by the necessity of sweeping away all the old errors, Vesalius forged ahead.

In 1538 he published the now excessively rare six *Tabulae Anatomicae*, and in 1541 he took part in the translation of Galen for the



PUBLIC ANATOMY CONDUCTED BY VESALIUS
Woodcut from the title page of *De Humani Corporis Fabrica* (1543)

Giunta edition. In 1543 appeared his epoch-making book, *De Humani Corporis Fabrica* (*libri septum*), published contemporaneously with the *Epitome* of it, by Andreas Oporinus of Basel.

Among scholars these publications roused tempests of hitherto unknown violence. The Galenists, who formed the majority of the university physicians, joined to a man in denying absolutely and vehemently the truth of Vesalius' statements. After the publication of the *Fabrica*, Vesalius, who had already made anatomical dissections at Bologna and Pisa, returned to Basel, where he prepared a skeleton that is still to be seen. Then new editions of his great work began to appear—at Lyon without illustrations in 1552; another, with many additions, at Basel, 1555; and another at Venice in 1568. Thus while his fame as an anatomist became greater and greater, on every side the most violent accusations arose.

Sylvius, his former teacher, took the field against him, while Realdus Colombus and other anatomists also attacked him. Perhaps irritated by these hostilities, perhaps even fearful of the threatening authority of the Church, Vesalius left Padua to become physician to the court of the Emperor Charles V, and in 1556 to his successor, Philip II, at Madrid. During his years at court he apparently followed the progress of the new anatomy and read with pleasure the works of his successor, Fallopius, but had no opportunity to pursue his own studies further.

In 1563, perhaps because of these difficulties, and perhaps for other reasons, but surely not for the need of expiating the alleged sin of vivisection, he undertook a voyage to Jerusalem. After several days at Venice, where he learned of the death of Fallopius, he departed for the Holy Land. It has been suggested that he had hopes of returning to fill the vacant chair of anatomy there, but on the return voyage his ship was wrecked at Zante and he was stricken with a severe illness, probably typhoid. He died there, alone and far from his family, scarcely fifty years old, without returning to Italy, where, as he had stated, he had passed the most beautiful days of his life. His body was recognized by a goldsmith and he was buried in the simple Church of the Virgin at Zante.

Vesalius' achievements in anatomy were truly epochal. His book, with the magnificent engravings by Jan van Kalkar, slowly but surely reached the eminent position from which it has never been removed. Today it stands as a valuable and practical anatomical text, as well as one possessing the distinction of being the masterpiece of a hardy pioneer who did not hesitate to affirm the new truths as he saw them, without directly attacking Galen.

Published in a beautiful volume with illustrations by a great artist, who himself must have studied the cadaver closely, this book is a document of the highest rank in the history of medical science. In Osler's opinion it was the greatest medical book ever written, from which modern medicine starts. Yet the man who wrote it was scarcely twenty-nine years old when it was completed, and, it might be said, with it his work as an anatomist was completed. Here for the first time the text was greatly aided by the illustrations; Vesalius himself closely supervised the execution of the engravings. He chose the kind of paper to be used and took pleasure in the beauty of the frontispiece, in which, in a symbolic scene full of life and worthy of the spirit of the Renaissance, the teaching of anatomy assumes the aspect of a ceremony.

Vesalius' work did not at once have the important success that it deserved; only with difficulty and slowly were the truths established that he had audaciously put forth. But even if the teachings of Galen continued to occupy an important place in the universities for another century, progress in a real study of anatomy continued without a break and demonstrated even more forcibly the need for getting rid of the incorrect classical texts. Thus the first breach was opened in the fortress of Galenism.

In selecting a printer, there are many good and sufficient reasons why Vesalius should have selected Oporinus of Basel as the printer of his monumental work. Basel had now supplanted Venice as the chief publishing center of Europe. The development of intimate relations between such distinguished printers as Froben, Petri, Episcopius, Cratander, Curio, and Behel with the Holbeins, Urs Graf, and others had revolutionized the illustrated book. Their editions, embellished by brilliant

Mr. Blockstein is administrative assistant at the School of Pharmacy of the University of Pittsburgh, where he was graduated three years ago. He has since taken his master's degree in science at the University.

decorations and initials, had no equal. It was no accident that two of the most beautiful illustrated books in the history of science, the magnificent herbal, *De Historia Stirpium*, of Leonhard Fuchs and the unrivaled *Fabrica* of Vesalius, should have emanated from this city.

But, as a printer, Oporinus had special appeal for Vesalius. He had some, though slight, acquaintance with medicine. He was a trained classicist, not only in Greek and Latin, but also in Hebrew, and all three tongues are incorporated in the *Fabrica*. He was a meticulous printer, not only an artist, but an innovator. He avoided the heavy roman type usual among the Basel printers and adopted a more delicate font, reminiscent of Plantin or, rather, of the great French school. No doubt there was a certain spiritual kinship between Vesalius and Oporinus.

There is no more contentious and difficult subject respecting the Vesalian problem than the question of the identity of the artist or artists responsible for the Vesalian illustrations. The puzzle has led to numerous conjectures—ingenious, improbable, and absurd. Opinions have ranged all the way from the view put forth at the beginning of the present century that the *Fabrica* is a flagrant and gigantic plagarism from the drawings prepared by Leonardo da Vinci in collaboration with Marcantonio della Torre for their contemplated volume on anatomy, to a theory recently promulgated that the real instigator of the *Fabrica* was the Flemish artist, Jan van Kalkar, who employed Vesalius as a literary hack to provide the text. On this whole question there is much to be determined by further research on the problem.

The illustrations of the *Fabrica* have been attributed at different times to a number of different artists. For a long period the woodcuts were accepted on the basis of their

excellence as the work of Titian. This view was reinforced by the proximity of Padua to Venice and the knowledge that although the work was published in Basel, the wood blocks, as stated in the preface, were cut in Venice. In 1670 a book was published that reproduced some of the illustrations from the *Fabrica* and engraved on the plates appeared the initials, "T. I. D.," i.e., design and drawing by Titian. In yet another book on anatomical illustrations the author speaks of the "very famous plates of Vesalius" designed by Titian. This last book appeared in 1679. No one at this time thought to question why, if Titian were responsible, he was not named in the book itself.

Opinion today swings back and forth between Titian and Kalkar. But the question remains, if not Kalkar, then who? It should be noted that Vesalius spared no effort to produce the *Fabrica* in a sumptuous edition. The choice of printer, the care with which he wrote directions for the printing of the wood blocks, suggests not only the maximum of personal care, effort, and energy on the part of the author, but also a willingness to spend whatever money was necessary to obtain the finest results. In view of this, it seems logical that Vesalius, living in Padua, would seek out the finest artist available.

Who then better than the great Venetian artist Titian? Moreover, Kalkar, a pupil of Titian, may already have given Vesalius an entrée into the great painter's studio. It is unlikely that Titian himself would undertake the commission, but more likely that he would turn it over to one or more of his assistants, possibly including Kalkar. It has been suggested that in this manner these assistants would probably employ studies made by Titian which they would copy in clearer outline and under Vesalius' instruction fill with anatomical detail: "the artistic invention of the figures, the idea, in the terminology of the period, and the mise en scène would be Titian's while Kalkar's would be that of 'medical designer.' "

Such a hypothesis has certain merits. It explains the characteristics of Titian observable in the figures, the question of how Kalkar, seemingly a second-rate artist, could produce work of the quality to be found in the *Fabrica*, and, finally, the fact that Vesalius definitely speaks in a later letter of the plurality of artists. We know that Vesalius drew all the illustrations of the vessels in the *Fabrica*.

Almost a half century ago it was pointed out that the background to the series of musclemen, if placed in contiguous sequence, formed a continuous landscape. Certain peculiar mannerisms in the drawing of the landscapes suggest that they were the work of Domencia Campagnola, who worked for Titian as a landscape draftsman at this time. His mannerisms are sufficiently distinctive to differentiate his work.

In conclusion, the cumulative evidence points with near certainty to the fact that the illustrations of the *Fabrica* and *Epitome* emanated from the workshop of Titian. Jan van Kalkar, Domencia Campagnola, and doubtless other artists participated in the work under the supervision of the master, but some of the plates are certainly the work of Vesalius himself.

* * *

The material used in this review of the life of Vesalius was compiled from a number of sources. I should like to give particular credit to J. B. deC. M. Saunders and Charles D. O'Malley for their excellent compilation of *The Illustrations from the Works of Vesalius*. References also used included Arturo Castiglioni's *A History of Medicine*, Charles H. LaWall's *Four Thousand Years of Pharmacy*, and Harvey Cushing's *A Bio-bibliography of Andreas Vesalius*.

COLLECTORS CORNER

MILLSTONES are a hobby with Charles F. Chubb. The former president of Dollar Savings Bank owns twenty millstones of various sizes, including four pairs. His smallest stone is 7 inches in diameter; his largest is 4½ feet across, 13 inches thick, and weighs 1½ tons. Many of these millstones are from streams around this section, and two pairs were shipped from Nova Scotia, where Mr. Chubb discovered a large number while vacationing ten years ago at Pugwash, near Northumberland Sound. A very old pair which, for obvious reasons, he does not own, flank the entrance to Evangeline's Chapel at Grand Pre, Nova Scotia.

His interest developed from rambling with the late A. Marshall Bell in search of old millsites along Pennsylvania streams, and he owns a number from Mr. Bell's collection. Several others from this collection were secured for Frick Park, two of which came from the Large distillery at Elizabeth. Mr. Bell, in Mr. Chubb's opinion, knew more about the millstones of southwestern Pennsylvania, the locations and owners of the old millsites, than any other man.

Millstones come originally in pairs, an upper and a lower stone. An iron shaft rises through a hole in the center of the lower stone, which remains stationary. The shaft is fastened to the upper stone by an iron head, and turns this stone. Both stones are grooved with straight or, occasionally, curved lines, running from the edge toward the center. The grooves served a double purpose in grinding the grain and providing outlets for the flour. Dressing of the stone, to get the grooves sharp, was quite an art for the stonecutter.

This is the first article of a new series which, the Editors hope, will prove interesting to readers of CARNEGIE MAGAZINE. *If you have an interesting collection or know of one, we should greatly appreciate a tip, so that it may be written up.*

The older and rarer millstones are of solid stone. The newer ones were imported from France and made of a composite stone with quartz in it. They were cut into small sections, fitted together like a jigsaw puzzle, and bound around the outside with an iron band. These French buhrs replaced the original stones and were actually better for grinding, although they do not have the same antiquarian interest. The old solid stones in western Pennsylvania were usually of a conglomerate, although sometimes of sandstone. Some millstones from New England and Nova Scotia were of granite, but being brittle were not so serviceable, although to a collector clean and beautiful.

Mr. Chubb's largest stone was discovered on the top of a well near Carmichaels, in Greene County, and he doesn't think there is another in this part of Pennsylvania equal to it. It now serves as a low table in Mrs. Chubb's garden at Hidden Brook Farm, on Coraopolis Heights. Two others stand at each side of their driveway entrance.

Before the timber was so extensively cut [see the present exhibit at the Museum], there was more water and more water power in western Pennsylvania, so today millsites may often be found on quite small streams. Usually the old mill structure is down, but the sites can be located by the millraces. There are not many millstones left lying along streams in this section, however, and most of those in New England have been privately collected. Quite a few have been

found around Ligonier and Rolling Rock. One of Mr. Chubb's small ones came from the wreckage of an old house at Second Avenue and Ross Street. Two pairs from McConnell's Mill are lying on the bank of Slippery Rock Creek, on land recently acquired by the Western Pennsylvania Conservancy for a park.

If anyone wants some millstones, is willing to travel to North Carolina and build a one-mile road to truck them out, Mr. Chubb knows where a number are lying along the Haw River. His son discovered them while studying at the University of North Carolina.

R FOR DOLDRUMS

[*Continued from page 307*]

himself when he read, "The fishing was good when we found the time," yet this illustrates better than anything else what constitutes a truly satisfying expedition. Build it on solid things—geology, the pursuit of science, a movie story, medical research—all of them, if the group is large enough. Save the fishing and the hunting for the spare time, and when you do either, keep proper records of game sighted and taken.

Nothing can compare with the inner satisfaction of having pioneered a new land and added a little to the world's knowledge, instead of following guidebooks written by others. Pick a spot about which little or nothing is known, and there are many left. There is bound to be a museum interested in the area, either along geological, botanical, or zoological lines. One or two experts taken along can guide the amateurs and show them how to make a respectable collection.

You will find that each trip suggests two or three others, until finally you will discover, as we have, that there are not enough years in a lifetime to crowd them in. One thing is sure, however, you will have added years to your life span by reason of the new interest that has been added.

THE JOY OF LEARNING

From Classroom Walls to Marble Halls

JANE A. WHITE

THE selection of the best teachers for instruction is first on the agenda of any educational program. So it is with Carnegie Institute. Conducting groups through the Museum requires of the instructor a knowledge gained only through years of study and teaching. The older teacher with his seasoned technique knows how to win and hold the attention of his listeners and to keep their sustained interest in a specific subject. He is an invaluable asset to our educational program.

In the past the Carnegie Institute employed University biology students and graduate assistants. While this was the best instruction available at the time for the money, it was inferior to the teaching of today. These students were too busy studying, attending classes, and so on, to be prompt and prepared to conduct classes at the Institute.

Four years ago the Division of Education employed, on a part-time basis, teachers who were retired from the Pittsburgh Public School system, and two years ago a grant from the Arbuckle-Jamison Foundation made it possible to employ two full-time teachers—one in biology and the other in social studies.

Museum instruction requires the teachers to be in good physical and mental health. During the busy season they are walking and talking continuously five to six hours a day. Our teachers have the physical stamina necessary. Then, too, they are able to inject into every lesson some past experience: such as, when they were camp nature counselors, when they toured the National Parks, or when as a child they spent their summers watching the animals on grandpa's farm. When I suggested "Nature's Playgrounds" as one of the subjects to be offered public-school groups, it was one of the retired teachers who had toured all the National Parks who had the vision and imagination to select the specific cases in the Museum to illustrate recreation. This tour, which she guides, has proven popular with science teachers.

In their earlier years of teaching, these retired educators spent many hours in the fields, forest, and along the streams training boys and girls to appreciate the world of nature. They were living conservation as they studied and taught it. Now as they talk about the various phases of our new conservation show DEADLINE FOR WILDLIFE, they have a rich background into which they can reach for their material. The retired teachers have seen in their own lifetime instances of both good and bad conservation. They have seen the person who enjoys the forest, and leaves it as he found it for the next person to enjoy. They have also observed the person who, through carelessness in the forest, caused a fire. They know the good of the past and can help the children avoid the pitfalls of tomorrow.

For the retired teacher, instructing in the Museum makes possible a gradual transition from the more strenuous activity of full-time teaching to the eventual inactivity of retirement. At the same time the salary supplements the retirement annuity. The instructor is given a feeling that his usefulness

Miss White is supervisor of science in the Division of Education at the Institute, under whose direction thousands of city school children, fifth through eighth grades, pay a visit to the Museum each year, coupled with similar visits to the Fine Arts exhibitions.

as a teacher is not at an end, that although he has retired from the schoolroom, there is still opportunity to share his knowledge with those who wish to learn. He is free from classroom responsibilities because there is no daily work of pupils to be checked and evaluated, no tests to be administered and graded, and no semester report cards to be made out. Instruction is always given to groups; therefore the Museum teacher is free from worry over the progress of individual pupils.

Even though the Museum instructor is relieved of much of his detailed classroom work, it is not an easy job. Not every retired school teacher has the personality, the scholastic standing, or the ability to teach at the Museum. It requires a different technique from classroom teaching. There are no four walls in which to conduct a class, the public is passing to and fro all the time, new cases are being constructed and new backgrounds painted. It takes a superior teacher to hold the interest of the listeners and keep them so absorbed in the subject that they neither see nor hear the distractions going on around them. Pupils benefit because these teachers, as a result of long experience in the classroom, understand young people and are able to talk to them in language that the children can understand and enjoy.

A former history teacher, with his rich background acquired in teaching pupils of all ages, is well qualified to conduct a tour through the Section of Man. He is well prepared to answer any questions the children may ask about the Valley of the Nile and its people, the American Indian and his culture, and the story of the development of transportation as shown by the models in the Museum. In the same way, the former science teacher, with his extensive knowledge of the world about him, can usually satisfy the curiosity of the boys and girls concerning the plants and animals shown in the exhibits.

And so, from our point of view, a retired teacher has a great deal to offer to the educational and cultural work of Carnegie Institute's Division of Education.

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ART AND NATURE BOOKSHELF

M. GRAHAM NETTING

REPTILES AND AMPHIBIANS, A GUIDE TO FAMILIAR AMERICAN SPECIES
By Herbert S. Zim and Hobart M. Smith
Simon and Schuster, New York City, 1953.
157 pages, 212 species in full color ($1.50)

SNAKES AS PETS
By Hobart M. Smith
All-Pets Books, Inc., Fond du Lac, Wisconsin, 1953
50 pages, 24 illustrations ($1.25)

THE PREVENTION AND TREATMENT OF SNAKE BITE
By James A. Oliver
New York Zoological Society, New York City, 1953
32 pages, 27 illustrations ($.30)

Just as the snake-collecting season draws to a close in the northeast, three small publications have been issued which will enable the amateur herpetologist to continue his studies indoors.

Hobart M. Smith, whose *Handbook of Lizards* of the United States and Canada is the standard reference in this field, has collaborated in a most successful fashion with Herbert S. Zim in a much needed addition to the series of Golden Nature Guides. This small book, profusely illustrated by James Gordon Irving, satisfies a long-felt need for a popular introduction to the turtles, lizards, snakes, frogs, and salamanders of the United States. Although it is not intended primarily as an identification manual, the extensiveness of the illustrations—all in color—supplemented by thumbprint-sized generalized distribution maps will enable a beginner to place almost any reptile or amphibian in the small group to which it belongs and in many instances to carry the identification as far as the species. Herpetologists everywhere will be grateful to the publisher for providing so many illustrations in an inexpensive book, for one of the drawbacks in our field has been the scarcity of colored illustrations of many species. In general the color rendition is excellent although many species appear less brilliant or less contrastingly patterned than in life.

Less space is devoted to text than to illustrations but a large amount of pertinent information on habits and behavior is provided. The authors are to be complimented on having produced an unusually accurate book although, as might be expected, there are a few statements with which specialists may take issue. For example, I think, for reasons discussed later in this review, that the figure of 150 deaths from snake bite each year in the United States is greatly exaggerated. The statement, "Neither reptiles nor amphibians are intelligent enough to make good pets," is controverted in *Snakes as Pets*, which Dr. Smith opens with the sentence, "Snakes are the world's most exciting safe pets." Actually most pets are not chosen, they happen. Love of animals is so universal that we adopt what circumstance provides and rationalize later.

As a dabbler in economic herpetology, I deny vehemently that if all reptiles should disappear "it would not make much difference one way or the other" or that the usefulness of amphibians ends with frog legs, insect eating, and experimental uses!

Poisonous snakes don't charm animals but they frequently fascinate neophyte snake fanciers to such extent that those who have the least business trifling with dangerous reptiles are most apt to do so. "I didn't know it was loaded," although equally hazardous is basically less stupid than an actual explanation offered by one captive-rattlesnake victim, "I poked it with a ruler to see what it would do." Early in *Snakes as Pets* Dr. Smith states the attitude of professional herpetologists so

forcefully that his words deserve quotation and requotation:

"We do not discuss here care of dangerously venomous species of snakes. They are obviously not suitable for pets. Only a person with long experience and with a definite purpose in mind should attempt to keep venomous snakes. We should warn that most persons, even with a long past association with snakes, who keep venomous snakes are bitten sooner or later. Intense suffering is invariably the result, and death occasionally follows. These animals are not pets, and should not be forced into that role."

An original feature of this booklet is a simplified breakdown of our "safe" snakes into forty-one groups, followed by a brief, easy-to-use key for their identification. This section should be of great value to beginners.

Handling techniques, collecting, cages, diet, moulting, reproduction, diseases and parasites, and snake-taming are among the subjects discussed in succeeding pages, but often so briefly that essential information is omitted. I missed, for example, any eulogy of newspapers—the most readily available, inexpensive, easily changed, soft, absorbent, insulating material that civilization has provided for floor covering in small snake cages.

The final section, wherein hobbyists are advised to select snake pets on the basis of food availability, should prove to be very useful. Here worm, insect, fish, toad, frog, mouse, lizard, snake, and crayfish eaters are considered under these respective headings.

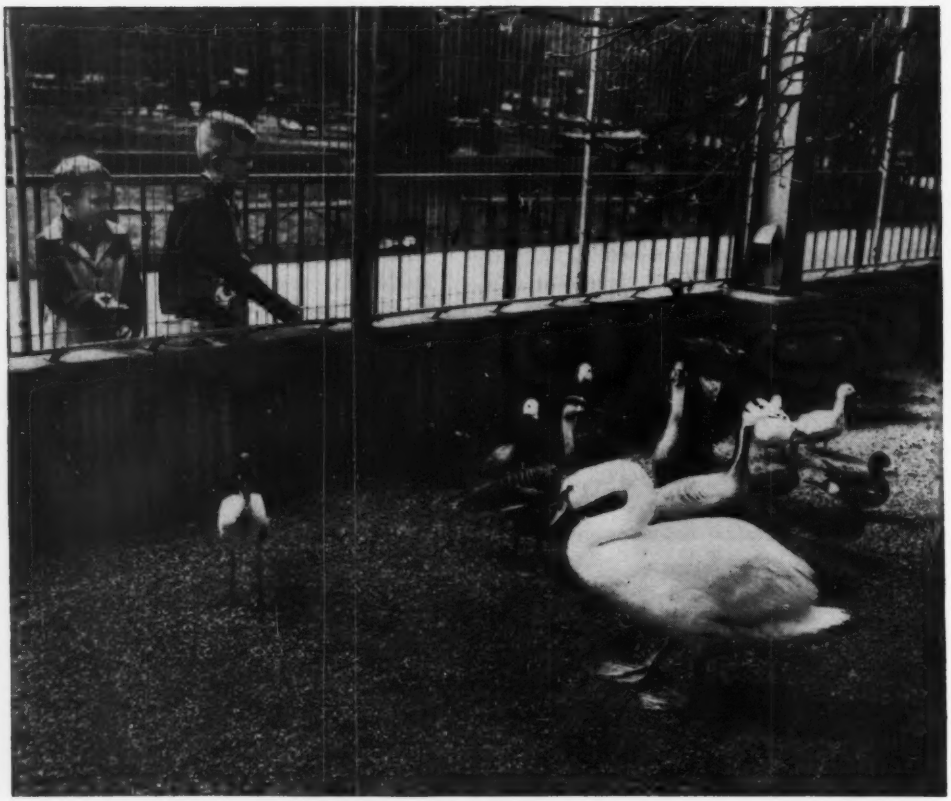
Herpetologists regard James A. Oliver, now curator of reptiles at the New York Zoological Park, as a most worthy successor to the late Dr. Ditmars. Each time Dr. Oliver publishes a new herpetological contribution, as he does with commendable frequency, I recall with pride that Carnegie Museum had a part in his early herpetological training. As a freshman and sophomore at Pitt, where his historian uncle has long graced the faculty, he made our herpetology laboratory his chief extracurricular activity.

Dr. Oliver, like all those who have attempted to evaluate the poisonous snake hazard in the United States, falls back on a 1928-29 computation that put the annual mortality figure at an outside total of 100. In the intervening years many snake resorts have become gasoline alleys, knowledge of preventive safety measures has been widely disseminated, and methods of treatment have improved. Basing my guess on the conviction that the surest method of getting national coverage on your death is by succumbing to snake bite, I would consider 25 deaths in any one year, religious fanatics who abjure treatment included, a high figure.

Whatever the correct number of bites and fatalities, both can be further reduced by following the recommendations in this pamphlet, which are vividly contrasted with "Don'ts." These conform to an almost hackneyed listing used by most herpetologists, but they are undoubtedly better illustrated here than in prior publications.

The three publications, altogether too briefly reviewed here, plus Karl P. Schmidt's, *The Truth About Snake Stories* and Conant's *Reptiles and Amphibians of the Northeastern States* would make an excellent beginner's packet for youngsters interested in herpetology at a total cost of less than $5.00 (all are available at the Art and Nature Shop for the convenience of local fanciers). This basic beginner's library may be supplemented at no additional cost by requesting from the Pennsylvania Fish Commission, Harrisburg, a copy of Harrison and Netting's *Pennsylvania Reptiles and Amphibians*.

Dr. Netting is acting director and curator of herptiles at Carnegie Museum. He serves as vice-chairman of the Recreation, Conservation and Park Council of the Allegheny Conference on Community Development.



Strictly for the birds . . .

but very nice for spectators, too, is the screen of U·S·S Stainless Steel wire used to keep these prize exhibits safe in their cage at the Chicago Zoological Park. The stainless steel wire is strong, safe, and long lasting . . . but has the additional advantages of corrosion resistance and smart good looks. It will stay bright and clean-looking. Only steel can do so many jobs so well.

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